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which otherwise would greatly impede the progress of reciprocity. To quote from Miss Nutting's very able paper on this point in the future of State registration: "This much is open to us now: In framing laws we may do so with distinct reference to future reciprocal relations, and in each State we should aim at establishing a standard sufficiently high to prevent its exclusion from other States." Also, "One thing we must realize, that is, the ideals which inspire the growth of any educational work must change from year to year; they cannot remain fixed and unalterable; they must grow, and we must grow with them if we wish to be worthy of our great responsibilities and really great opportunities.

THE WAR AGAINST MALARIA IN ITALY

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TRANSLATED FROM THE ORIGINAL

By L. L. DOCK

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[After some scientific discussion which we are compelled to omit the account continues:]

But the most extensive and fruitful inquiries are those which have been made in the most important field, from the point of view of practical results, that of prophylaxis. The first steps taken by Casagrandi and myself had for object the destruction of the mosquitoes. The results obtained in my laboratory were very encouraging. But in the unlimited field of practice the difficulties were such that one could hardly, in this way, accomplish the extirpation of malaria except in special cases. Our attempts to find a preventive serum remained equally fruitless.

On the other hand, the most practical results were given us by quinine and by mechanical protection against the sting of the mosquito. Quinine has long been employed as a specific in malaria either to cure an infection already received—curative treatment, or to obtain an artificial immunity induced by the drug—preventive treatment.

As regards the first of these two types of treatment, we were able to add to the testimony that there are fevers so obstinate as to recur in spite of even prolonged treatment with quinine alone or associated with arsenic and iron. This is why treatment, even the best and most intensive, applied in the preëpidemic period only, does not prevent, in the

course of the summer immediately following, the development and extension of malaria, and, consequently, it is practically more difficult than one would believe to extirpate malaria from an extended locality by treatment with quinine during the fever alone. In any case this could only be the work of long years, and every case of fever, whether primary or recurrent, in each period of the year would have to be combated assiduously and energetically. Happily, the preventive treatment by means of the preparations of quinine gives more definite and more satisfactory results. Thus, in 1900 we experimented with euquinine, but its price being excessive, we had to give it up, in spite of its easy administration and excellent results.

In 1901 we employed the bisulphate and hydrochlorate. Of two hundred and eight persons under treatment, there were scarcely two per cent. of cases of malaria, whilst those who, as control experiments, received no treatment showed a proportion of cases varying from twenty-five to sixty-six per cent.

[Statistics of treatment with hydrochloric acid then follow, and the article continues:]

The above-mentioned salts of quinine, easily soluble, are tolerated longer and better than we would at first have supposed.

For prophylaxis the daily treatment is more efficacious than the discontinued treatment at intervals of almost a week. When administered daily, some buzzing of the ears is caused for the first three or four days. After that there is no disturbance, the appetite improves, and strength increases. When these salts are given every five, seven, or ten days the buzzing of ears returns with each fresh administration. Moreover, the alkaloid is eliminated rapidly; the blood may be thus protected insufficiently or not at all. On the other hand, with daily doses the drug exerts a cumulative action and produces a perfect antidotal force.

We may note in addition that the preventive use of quinine, even when it does not succeed in preventing fever (and failure of this kind is rare), in no wise prevents the therapeutic action of larger doses, as has been believed, but, on the contrary, facilitates it. Large doses, far from being less efficacious with those who have taken preventive treatment, are more effective in terminating malaria if it should have developed despite the preventive doses.

A large sphere of action is thus reserved for the above-mentioned salts of quinine in practice for all those whose work lies out-of-doors, or for country laborers and those who work at night.

Thus, for the peasants employed on large farms infested with

malaria in time of harvest this method of preventing fever should be extensively used.

[After discussing the different preparations of quinine, Professor Celli continues, outlining the work of preventive treatment as follows:]

(a) During the months in which the malaria develops preventive treatment should be applied to all persons, those who are well as also those who may have a latent infection.

Daily or weekly distribution of quinine can be made without difficulty, provided that the sugar-coated tabloids are used. The cost is very small, two or three francs per person during the whole season of four months. The quantity of quinine necessary for each person during the whole course of treatment is less than that which must often be employed to cure one case of fever.

(b) Those rare individuals who in spite of prophylaxis take the fever must have therapeutic doses immediately with the aim of cutting short the disease. And this must continue from two or four weeks, the preventive treatment finally being resumed.

(c) Individuals who in spite of treatment suffer recurrences must be treated with large doses for a yet longer time,—four to six weeks,—and also with iron and arsenic.

In this way, from one year to another, this hereditary scourge of infection would be continually weakened; by perseverance, it would be possible to attain a remarkable reduction, perhaps even an entire suppression, of the tribute which our rural population pays to malaria.

Everywhere in Italy *mechanical prophylaxis*, especially the protection of houses against the entrance of mosquitoes, has given most marvellous results. In 1901, upon the initiative and by the advice of our society, five thousand one hundred and sixty-five persons, employés of the railroads, public officials, peasants, working men and business men, were mechanically protected against malaria.

In localities especially chosen for a virulent type of malaria, among four thousand three hundred and sixty-three individuals completely protected there was an average of 1.9 per cent. of cases, and among eight hundred and two who were incompletely protected 10.9 per cent of cases. In 1902 of five thousand eight hundred and fifty-one persons mechanically protected there was in all 2.8 per cent. of new cases, and only 10.1 per cent. of recurrences.

Thus a great number of poor families afflicted for years by malaria for the first time entered, as it were, upon a new life, thanks to mechanical prophylaxis either alone or associated with treatment by quinine.

[Professor Celli then spoke in detail of different places where mechanical protection was in full force, but concluded that the expense of proper window-nets and screen doors and the care necessary in managing them would prevent this method of protection from ever becoming general among the peasants. He also spoke of the interest which had been shown in the work of the society by the Governments of France, England, Austria, Russia, Roumania, Greece, Spain, Brazil, and Argentine, and of his hope that there might be an international effort made towards abolishing this universal and formidable scourge. He then continues:]

Italy has given the first example of special legislation against malaria. On the initiative of members of our society Parliament has already passed two laws.

In virtue of the first, pure quinine is prepared and distributed for sale over every part of Italy under government supervision. According to the second, workers and peasants are to be abundantly and gratuitously supplied with quinine by physicians at the expense of the employers. A neglected case of malaria is recognized as an accident received in the course of work, and in case of death damages may be recovered on the ground of criminal neglect. The State set a good example in protecting all the dwellings of those directly or indirectly in its employ. Consequently the customs officers, the employés of highways, railroads, and all kinds of public works, will all be protected against malarial infection, and now that the obstacles audaciously opposed by a small number of selfishly interested or unprincipled people have been overcome, these two beneficent laws are proving of precious and inestimable service to the people.

The revenue received by the Treasury from the sale of quinine, which will be considerable even though it is sold at a low price, is to be entirely devoted to the work of prosecuting the national struggle against our secular enemy.

In France there is talk of imitating our legislation as to quinine.

The municipality of Rome has given the good example of introducing new and salutary principles of anti-malarial hygiene into the regulations of the local sanitary board. Upon my proposition the Minister of Public Works has also incorporated them into contracts for new undertakings in malarial districts, and he has published the new regulations which must be conformed to in beginning and carrying on work in reclaiming the soil. Three hundred and twenty-five thousand souls will be affected by these rules. The scientific irrigation of the Roman Campagna will henceforth be accomplished with an eye to the new principles of the etiology of malaria in seeking the maximum of hygienic efficacy.

If other communes which have land in malarial regions imitate the good example of Rome, there are grounds for hope of gradually putting the foe to flight and of ridding our most beautiful and potentially our richest land of its scourge, for it is capable of becoming most rich and productive if the peasants who work it can be enabled to remain on it all the year. Such a peasant as ours, working miracles wherever he emigrates, must be assured in the great estates where he works of healthful dwellings, which, with the guarantee of prompt, assiduous, and gratuitous treatment by means of quinine, will assure him a tranquil existence and prosperity where he now finds only illness and death. Then the colonization of great estates will become an accomplished fact. With this aim, the concurrence of the State in the building of rural dwellings has been secured in the project of reclaiming the Campagna, and a new sanitary law compels proprietors to construct and maintain protected dwellings or shelters in malarial regions.

In order to educate the people, without whose coöperation laws, and especially sanitary laws, are ineffective, conferences have been held in the principal cities of the kingdom, and in the country forty-two thousand leaflets have been distributed teaching the new principles and new methods for warding off fever.

Giustino Fortunato warned us long ago that malaria is the essential problem for Italy, and that it plays a capital rôle in the urgent and menacing questions of southern countries.



THE X-RAYS AND STERILITY.—Many of the medical journals have given place to articles and discussions on the X-rays as a cause of sterility. Their inhibitory effect on the growth of seeds has been proved, and German experimenters have produced sterility in rabbits by exposing the abdomen to the action of the rays. Several men engaged in doing X-ray work have been rendered at least temporarily sterile as a result of exposure, and it is said that women are even more susceptible to its influence, the ovaries being so affected as to destroy the vitality of the ova and so render impregnation impossible.

It is suggested that a powerful agent is thus available for the improper prevention of pregnancy. Also that the generative organs of degenerates should be treated by this means to prevent their propagating imbeciles or degenerates like themselves. Its use is also suggested in the case of enlarged prostate, as infinitely more easy and painless than castration.